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A CRITERION PAPER ON PARAMETERS OF EDUCATION. FINAL REVISION.

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THIS POSITION PAPER DEFINES ASPECTS OF INNOVATION IN EDUCATION. THE APPROPRIATENESS OF PLANNED CHANGE AND THE LEGITIMACY OF FUNCTION OF PLANNED CHANGE ARE DISCUSSED. PRIMARY ELEMENTS OF INNOVATION INCLUDE THE SUBSTITUTION OF ONE MATERIAL OR PROCESS FOR ANOTHER, THE RESTRUCTURING OF TEACHER ASSIGNMENTS, VALUE CHANGES WITH RESPECT TO TEACHING RESPONSIBILITIES AND MODERN TECHNIQUES OF TELEVISION AND PROGRAMED INSTRUCTION, NEW STRUCTURES, AND CHANGES IN PHYSICAL FACILITIES. FEDERAL AND STATE GOVERNMENTS, EXTERNAL OR CIVIC CHANGE AGENTS AND INTERNAL AGENTS SUCH AS SUPERINTENDENTS AND PRINCIPALS FUNCTION AS CHANGE AGENTS, HAVE NO CLEAR CLIENT SYSTEM, AND UTILIZE NO SYSTEM FOR DISSEMINATION OF RESEARCH FINDINGS. THE COMPLEX DECISION-MAKING STRUCTURE OF EDUCATIONAL INSTITUTIONS FURTHER INHIBITS PLANNED CHANGE. EIGHT ELEMENTS (NOW LACKING) ARE SEEN AS ESSENTIAL FOR THE ACCEPTANCE AND DIFFUSION OF INNOVATIONS--BROAD GOALS, SPECIFIC GOALS, PROFIT MOTIVE, RESEARCH AND DEVELOPMENT INVESTMENT, ECONOMIC ADVANTAGE, PERSONAL ADVANTAGE, CLEAR PERFORMANCE STANDARDS, AND CLEAR PRODUCT ASSESSMENT. THIS PAPER WAS PRESENTED TO THE CONFERENCE ON STRATEGIES FOR EDUCATIONAL CHANGE (WASHINGTON, D.C., NOVEMBER 8-10, 1965). (JK)

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PARAMETERS OF EDUCATION

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Introduction

The purpose of this paper is to attempt to define the various boundaries and limits which pertain to innovations in the field of education. An effort will be made to define a number of variables which are known or believed to have an impact upon the spread of innovations in other fields and then to relate them to education. In addition to identifying some of the variables, the writer has made certain evaluative judgments in a number of instances as to the ease or difficulty of making the applications from the other fields to that of education.

It might be helpful to the reader if the writer were to indicate his approach to the task as presented by the title of this paper. An examination was made of a considerable number of resources, a number of which are indicated in the bibliography. A study was made to identify pertinent variables from a variety of other fields and disciplines. After pertinent variables were identified which had implications for education, the writer then interposed them into the educational setting. In the preliminary draft of the paper the writer arrived at a series of categories by clustering those factors which seemed related. Therefore, the variables came from other fields but the categories or general headings were developed by the writer.

Upon the receipt of the publication by Bhola on "Innovation Research and Theory," the writer then adopted the taxonomy which the author of that publication projected. This revised version of the paper restructures the original categories in the preliminary paper to fit this new taxonomy. Interestingly enough, three of the original categories proposed by the writer are among the five proposed by Bhola. The other five categories originally proposed by the writer have in the main been combined to form the other two categories in the taxonomy developed by Bhola.

Philosophic Considerations

A basic problem in education is a philosophic dilemma which is whether in a democratic social order it is appropriate or desirable to promote deliberate change. A general problem is the one of planned change with which Corey deals when he says:

> "....A great deal could be, and has been, said on this subject; but the central ethical considerations do not seem to me to have to do with the fact of trying to bring about change in others or even with the specific nature of the changes. The ethical questions that concern me most have to do with the means employed to induce change. It is here that my conscience, at least, becomes most deeply involved. I do not seem often to be offended by the outright and direct attempts of others to make me over in their image of what I should be. I am assuming that this is done with reasonable tact and without too much threat to my self-respect, which admittedly is easily threatened, and that I can walk away or otherwise get out of the field of influence whenever I want. What is objectionable is trying to change others by methods that are based on the realization that if they knew what was going on they would have none of it. Subliminal advertising is an illustration, as are most instances of brainwashing and the insidious kinds of propaganda. Blatant propaganda is not quite as bad because its blatancy is its own antidote.

"Summarizing this point of view toward ethical considerations in trying to change other people, my feeling is that within rather wide limits it is the methods employed rather than the ends in view or the desire to attain these ends that raise the most serious questions about good or evil. A method that enables the individual who is under pressure to change to protect himself if he so desires and to persist as he is because he realizes what is going on strikes me as being acceptable in that it does not violate my sense of right or wrong." (1)

Many people would not agree with Corey, that it is the means rather than the ends which are important--in fact many people would just reverse the order. There are those who do feel, however, that until we come to grips with the basic problem of planned change, we shall really not have touched the fundamental issue in education. Among this group is Clark who recently made the following statement:

"....The fact is that, although we talk about change in the literature of education and obviously some change has taken place in education, we evade the real question--whether or not we have a program of planned change or planned innovation in the field of education, since any social process field, no matter how conservative it may be, is forced by the pressures of its existence, to change to some extent.

"I think that we might play a little game, and place ourselves in the position that H. G. Wells must have been in when he tried to project the changes that were likely to occur 50 or 100 or 200 years before they occurred. Let us place ourselves in the field of education as professionals at the turn of the Twentieth Century and ask whether or not we could have predicted the kinds of changes that have occurred in the field of education over the past 50 years. My guess is, and I don't know that this is the case, that we would have a pretty easy job predicting the kinds of changes that were to take place in the field of education. It wouldn't have taken an inventive genius of the H. G. Wells type to predict these changes. When we point, for example, as we very often do, to the elimination of the one-room schoolhouse and the consolidation of education into larger units, this is a perfectly inevitable consequence of our society, and anyone could have predicted 50 or 60 years ago that this was going to happen--that is, anyone with the modest amount of insight that an average professional in the field might have had.

"I think using a criterion of whether or not the changes in the field are unpredictable, education doesn't come out very well. But we can make this assessment a little less literary and dramatic and a little more systematic by asking questions in regard to the conceptual bases for change in the field and by studying the formal mechanisms that are set up in education to facilitate change.

"First, in terms of the conceptual basis for change in the field of education, I think it's perfectly clear that educators have not accepted the social psychologist's concept of planned change. When the term 'planned change' is used in a group of educators, there is some sort of '1984 image' created on the part of the educator. Immediately conjured up is the political scientist's notion of planned change, not the social psychologist's concept of it.

"Educators as a whole have come to view the 'fit and start' pattern of change in this field as the natural order of things. It is very difficult to convince a group of educators that this is not, in fact, the way God mandated the process of change in the field of education, and that we can, in fact, do something; we can intervene in this process." (2)

There is a feeling among some educators that the purposes of a school system grow out of the wishes and desires of the citizens of the local community. Historically, some attempts have been made to bring this question into clear focus. One such attempt is the book by George Counts (1932) entitled, Dare the Schools Build a New Social Order? The strong opposition with which this thesis was greeted, even in the depths of the depression, is an indication of how antagonistic many people are, including professional educators, to the idea of the school systems playing a carefully calculated role in the renewal or re-direction of our society.

Lest one feel that this resistance to the planned role of schools was true only of the depression days, some recent conferences of educators have indicated a laissez-faire role for the schools. For example, when

new directions in education are proposed by someone, there is an immediate question from many as to "whose directions?". The implication is that the schools must wait until there is sufficient crystallization within a given community in order that new directions can be taken.

One of the first questions, then is the ethical or philosophical one as to whether the school system and the decision makers within it should only follow the ebb and flow of public opinion or whether they should consciously and intentionally attempt to plot at least in part the direction the school system should move and thereby influence and/or manipulate the various elements of the educational enterprise.

Content of Innovations

The very nature of innovations in education have implications for their ease of adoption. The simplest type of innovation is that of the substitution of one element for another. Agricultural innovations such as new varieties of seeds are fairly easy to diffuse. A kernel of hybrid corn appears exactly the same as a kernel of open-pollinated corn. In order to use hybrid seed corn, no adjustments have to be made in the planter or other implements, no changes have to be made in terms of the appearance of the crop in the fields and one does not even have to confide in his family or in any of his friends that he made the decision to adopt the new variety of seed. Likewise in the case of the physician where a new anti-biotic may be exactly the same size, shape, and color as another anti-biotic prescribed earlier. Under such circumstances there is little

problem involved in making a change from an older to a newer prescription.

The more difficult changes are those which involve restructuring of arrangements involving people, organizations or facilities and which may often involve some value changes. When a medical general practitioner changes to a member of a medical clinic of specialists, a number of changes occur which are difficult to accomplish. The doctor himself must become a part of a team situation and must defer in his judgments to one or more of his colleagues who may be more highly trained and in a better position to make a diagnosis. He must, therefore, give up part of his status when he enters into such a relationship. The patient's relationship to the specialist is also different as he moves from the hands of the general practitioner who has dealt personally with him to the clinic approach which may give better medical treatment but with some possible loss in personal relationships.

The most difficult change of all is that which involves value changes. The recent activities of the medical profession in regard to medicare is an excellent example. Since, in the opinion of the medical profession, medicare represented a rather fundamental change in the relationship of the doctor, the patient and the Federal government, it was resisted vigorously. When innovations require value re-orientation, they are accomplished only with the greatest of effort.

Substitutions

Educational innovations follow somewhat the same continuum as those of other fields as suggested above. The simplest innovation to accomplish

is one where there is a mere substitution of one piece of material, equipment, or process for another. Such an innovation as the overhead projector is in general the substitution by an individual classroom teacher of the overhead for the chalkboard. Although it is hoped that the overhead projector may eventually involve other kinds of uses, it initially is utilized in the classroom for the presentation of materials formerly presented by the chalkboard. The adoption of the overhead projector by an individual teacher does not fundamentally change her relationships with the peer group. It doesn't even involve a drastic change in the physical layout of the classroom including light control. It generally is used to enable the teacher to do more effectively what she has been attempting to do previously.

Restructuring.

Many of the innovations in education involve other teachers, administrators, and parents as well as new techniques and processes. When one introduces team teaching, for example, it calls for a restructuring of the teacher assignments. It is somewhat akin to a specialist in medicine since teachers must give up a part of their autonomy and of individual decision-making to the group. The status also has changed since they are no longer the sole determiner of what happens and the students look to the total team for answers rather than to only one teacher as formerly. As one goes into teaching, more sophisticated hardware is likely to be used and new skills are likely to have to be developed by the staff. The content itself

requires re-examination and restructuring and the students themselves are also in new surroundings with new and different group pressures so that their circumstances are also changed. Under such situations, innovations are more difficult to achieve because they involve a much wider range of decisions and new roles to be played by many different people.

Value Changes.

When fundamental changes in how different people perceive their roles which require attitude changes, the innovation generally proceeds the slowest. Both television and programed instruction are new instructional procedures which require the individual teacher to re-evaluate her position. Both TV and programed instruction require the teacher to be willing to have an outside person or material inserted between herself and the learner. To be used successfully both of these techniques require that the teacher's self-concept be such that she does not see these outside forces as threatening her own role or self esteem.

Therefore, educational innovations span the full continuum from simple modifications and substitutions to value and attitude changes. The further the innovation moves down the continuum toward value changes, the more difficult it is to achieve. Many of the newer developments in education do involve fundamental re-examinations of the function and place of the teacher, of materials, and of organizational structures in the learning process.

New Structure

Some changes are so difficult to accomplish that an entirely new structure is created in order not to interfere with the current operation. In many places the development of instructional television has been an innovation of this type. A new organization was developed to promote and program educational television rather than going through the established audio-visual center and/or library. This approach is taken when the risk appears so great that the innovation would be rejected by the traditional system so that the decision is made to develop a complementary if not competitive organization.

Changes in Physical Facilities.

As the late Winston Churchill once said, "We shape our buildings and then our buildings shape us." The physical plant is always an important factor but in education the school building greatly limits the kinds of innovations which can be attempted.

Although there are many modern school buildings, several millions of children still attend schools where the facilities were constructed from 25 to 50 years ago. Because innovations in education often are related to group size, the building itself limits much in the way of what might be attempted. With proposals for large groups, small group seminars, and individual study carrells, certain kinds of space requirements must be available. Any reorganization of the sizes of school groups may be made difficult, therefore, by the school building which may be adapted but not changed fundamentally.

A second limiting factor of facilities pertains to the use of various pieces of equipment. Even the simplest types of projected media require certain kinds of physical layouts for maximum visual and auditory reception. Such factors as light, sound, and climate control are among those which determine the amount of technology and thus change which can be introduced into a classroom.

Nature of Inventors, Innovators, and Adopters

The terminology of "inventors, innovators, and adoptors," do not have precise meanings in the field of education. Other terms used in lieu of innovators are: change agents, advocators, discoverers, elaborators, systematizers, codifiers, and promulgators. Instead of adoptors, some writers use the term acceptors, (differentiating between early and late acceptors) and classifying those who are negative to changes as rejectors. Rejectors, these researchers say, can be considered as either the dissident, the indifferent, the disaffected, or the resentful. Although there are no precise terms which are used, the general meanings attached to the above terms are reasonably evident.

Federal and State Governments.

Increasingly, the Federal Congress as well as the legislators of the several states are serving as change agents because of the type of legislation which they consider and pass. For example, The Elementary and Secondary Education Act of 1965 could have more profound effect upon elementary and secondary education and to some degree higher education than any single legislative act in U. S. history. State legislators also are becoming

more involved in mandating certain changes in the state school systems under their control. Consider the impact which the Fisher bill has had and will have on schools, teachers, and teacher education programs in California. Similar actions by other legislators on a wide range of issues facing the schools suggests that these political bodies are becoming very much involved in mandating changes in educational programs.

External and Internal Change Agents.

There are a group of external forces which have had little impact on educational institutions in the past but which are likely to be of much greater significance in the future. An increasing amount of attention is being given to intermediate and cooperative units to provide services as well as to promote various changes in the school programs. The Greater Cleveland Research Council is an example of one such group. The role of state departments will be increased in the future as is suggested later on in this paper. A recent meeting at Kansas City has led to the development of a new Compact for Education under which it is proposed to carry on certain research activities as well as activities to promote change. As the implementer of federal policy legislated by the U. S. Congress, the USOE will be of great significance in future educational developments. The new system of laboratories which will be funded under Title IV of the ESEA will introduce an entirely new organization and structure into education at all levels.

Internally within a school system there are some strong convictions on the part of some people that the superintendent of schools is the

most significant person in terms of what happens within that system as well as within each of the individual buildings. These same writers and researchers also contend that the principal within a building is the second most powerful figure in terms of promoting educational change. There are a number of highly respected researchers, however, who maintain that the classroom teacher holds the key to the ultimate adoption of educational change. These people maintain, first of all, that teachers are creative individuals, who, if given an opportunity, could be highly innovative. Secondly, they suggest that even in the case of innovations coming from the outside, it is only as the classroom teacher is willing to accept, to adapt, and to promote the change that it will ever be successfully adopted. Therefore, both groups of persons, administrators as well as the teachers, likely are innovators and change agents but of different kinds.

No Designated Change Agent or Agency.

A problem of schools is the lack of anyone charged specifically with the responsibility for developing and/or promoting new practices. Some years ago Coombs called for "A Vice President in Charge of Heresy" (3) as someone who was needed to stimulate educational changes. If a person were charged with the responsibility for research, school improvement and innovation, there is a question as to whether it should be the superintendent of schools or whether the responsibility should be assigned to someone on the central administrative staff who is directly responsible to the superintendent.

No Clear Client System.

There are certain aspects of the school structure which have implications for the diffusion of innovations. One of the problems is that a school system does not have clients, insofar as the general use of the term is concerned. For most services in our society, clients come to the institution voluntarily and on the basis of what they believe to be superior performance on the part of those who operate within the institution. In the field of education, however, the students who are the clients are required to attend a school over which neither they nor their parents have any particular control. Therefore, because there is no choice, the professional staff which operates within the school system are not required to perform at a high level in order to attract and hold present and future students.

Private and parochial schools differ on the above point since there are reasons why parents will bear the extra cost of educating children in such schools. This is one of the places where the problem of innovation differs between public and private and parochial schools.

No Dissemination System.

Although the quantity of good, defensible research in the field of education has been small, there has been faith on the part of many persons that if the research results could be identified they would be implemented automatically. There has been almost blind faith that if we could just accumulate more research evidence that such information would quickly find its way into practice. Again because of the peculiar nature of the school

enterprise, it appears necessary to develop reports about research findings which can be understood and interpreted by school personnel. We do not currently have large numbers of people in school systems who are able to make the necessary adaptations from research studies completed in other places in order to achieve a successful implant in their own situation.

Pluralistic Nature of School Systems

A final problem is the pluralistic rather than the individualistic nature of a school system. This problem is in part involved in the complexity of the school system discussed below. The difference between the individual entrepreneur who may be a farmer or a physician who is in a position to make decisions concerning acceptance/non-acceptance of an idea is in contrast with decisions in a complex school system.

Process and Tactics of Diffusion

A Complex Decision-Making Structure.

Educational institutions operate in a very complex economic, political, social, cultural, and professional environment. A large number of forces impinge upon decision-making both in regard to the overall program as well as to its individual and specific parts. Such forces make more difficult arriving at changes in education as contrasted with many other activities in our society where decision-making is limited to one or a few persons.

The final decision-making body in education is a lay board of education which is in direct contrast to policy making in practically every other social institution. The decision-making has been placed in the hands of

persons who generally are not well acquainted with educational problems. There are wide variations in the ways in which such boards perform their duties. They may be highly dependent upon professional advice and assistance or they may not seek it and if it is given, refuse such assistance. Some board members represent elements of the community who find certain parts of the school program inimicable to their best interests and, therefore, decisions are made on the basis of personal rather than professional or community interests. Because board members are lay persons, they are not always in the best position to make judgments about educational innovations without considerable study and analysis.

Local boards of education also are very likely to make decisions based upon their perception of purely local needs and interests without reference to the state, national, or international scenes. Since only segments of some of the problems in education exist in a local community, there is a problem for local boards to be sensitive to the larger issues in education in which the local systems must eventually participate and reach some solutions. Because many educational innovations are developed to meet more general problems, a local board is faced with the problem of assessing what the posture of the local school should be toward these new developments.

The professional staff of a local school system has common elements but probably more diverse characteristics. There is a partial dichotomy which exists between elementary and secondary teachers where historically greater status, and until recently, greater salaries have been paid to those teaching at the higher levels. The elementary teacher generally

performs in a self-contained classroom where she is responsible for most of the activities occurring to the learners under her direction while the secondary teacher is subject-matter orientated and not totally responsible for all of the student activities. Therefore, there are not the cohesive and integrative factors within the professional group which make changes easy to promote.

There is, at all levels, almost complete autonomy on the part of classroom teachers to make decisions about the things which occur within the confines of their classrooms. Although supervisors have often been appointed to promote new practices, there continues to be considerable reluctance to make demands upon classroom teachers to perform in new or different ways. There is a strong feeling that there is only one person who is in a position to formulate plans and make judgments about what goes on in a classroom and that is the teacher herself. The decision-making responsibility of the classroom teacher has had long historical precedent.

Classroom teachers generally are fairly highly educated individuals with a minimum of a baccalaureate degree and with additional formal study in many cases. Because teachers have at least four years of higher education, they feel they are in a position to practice in a somewhat independent fashion.

Although the board of education is responsible for making policy decisions about the school system, individual parents as well as organized groups such as the PTA play important roles in what happens in a local school system. As individual parents, they have entry into the classroom through the teacher of their own child and, although the teacher is not

required by law or school policy to make adaptations to suit a family, she may well make changes for personal or political reasons.

Although such organizations as the PTA indicate specifically in their national and state by-laws that there is to be no interference in local school affairs, there is no question but what the interests of such a collective group of parents does play a role in decision-making by school authorities. Although a direct route for such lay participation really lies through the board of education, the expressed needs of groups of parents may change school policies directly without going through the official channels of the board of education.

Because most parents have at some time or another attended the schools as students many of them feel that they are experts in curriculum, child psychology, and school practices. Schools, therefore, are confronted with a particularly difficult problem in coping with individuals who feel they have some expertise in educational matters.

Although students in the schools have generally not had a direct means of communicating their interests, needs, and desires it is evident that pupils do play a part in what happens in a classroom or school system. Many parents take seriously the day-by-day ups and downs of the classroom and in turn communicate their approval or disapproval as to what is happening directly to school authorities. The students are perhaps in the best position to judge teaching effectiveness of anyone in a school system. The unfortunate aspect of the student's evaluation is that it is entirely personal and generally on a "like-dislike" basis rather than some other more valid measures of performance.

Although local school systems make decisions about curricula and courses of study including content, much more of what is occurring involves decisions made by persons far removed from the local scene. The profession itself is becoming heavily involved in the planning of various curricula and a review of the departments of the NEA, for example, disclose such groups as "The National Council for the Social Studies," or the "National Association for the Teachers of Science." Since the NEA represents primarily elementary and secondary teachers, these various departments include a majority of teachers who are desirious of making decisions about basic content in their subject matter areas. These various departments issue a variety of publications dealing with content, teaching methods, and materials.

An increasing role is being played by scholars located primarily in universities and colleges working through such learned societies as the American Historical Association or the American Chemical Society. Although such groups do not necessarily have objectives which are different from classroom teacher groups, they frequently do perceive both the content and the teaching methods somewhat differently. It is worth noting that most of the successful curricular innovations have been developed and promoted by the learned societies and the scholars within these groups rather than by educators within the professional organizations. Many divisions render more difficult the making of decisions about innovations in curriculum.

Other agencies outside the local community which help compound the problem of decision-making are the teacher education institutions, intermediate units, state departments of education, foundations, and federal

government. A developing pattern of teacher education is to make much more extensive use of local school systems as laboratories for both teacher preparation as well as curriculum developments and refinements. These relationships could help to complicate decision-making about innovation by local schools as the staff of these schools become more heavily involved in consultations with scholars, researchers, and clinic professors from institutions of higher education.

State departments of education have been primarily statistic-gathering organizations with limited functions of school improvement and little or no promotion of innovations. The new federal legislation restores, to a degree, a constitutional role of the State Department by placing upon it the administration of federal programs and, more important, the promotion of changes and innovations by local schools. As State Departments reorganize to fulfill the new functions there may well be less autonomy for decision-making about changes by local schools.

It is evident that the federal government will play a larger role in educational activities than has been true in the past. The federal government intends to guarantee to every child, regardless of where he lives or the conditions under which he lives, an opportunity for quality education. The federal legislation has been designed, therefore, to assure each child of his birthright and to guarantee that the necessary changes are made in local schools in order to implement such a philosophy.

Foundations have had an impact on educational decision-making. Funds made available to local school systems have often been used to implement certain kinds of innovations through demonstrations. Often local schools

have been required to accept the merits of an innovation proposed by a foundation "on faith" and to utilize the funds for demonstrating the new practice to other schools. In many other instances foundation funds have been used to determine the merits of a new idea before promoting its widespread adoption.

It is evident that decisions made in a local school are the result of a wide-range of forces which play upon those responsible for making decisions. In business a plant owner need not consult with anyone before deciding to make a change. In many other parts of the world a decree rendered by a responsible authority in the Ministry of Education must be complied with by the local school and the individual teacher. The American school system has built into it, however, a variety of mechanisms which make consensus difficult to obtain and decision-making a highly complicated matter.

Lack of Linkages.

A further dimension of the process of diffusion pertains to what the sociologist calls "linkages." Within our society generally and within most institutions there is a theory that if a few key people can be reached with a message they will in turn influence large numbers of other individuals. Some studies in the field of education suggest that there are few status leaders even within a building who influence other colleagues.(4) This factor is no doubt related to several others dealt with earlier, namely, that there is some distance between elementary and secondary school faculties as well as considerable distance among faculty members in the several subject matter fields taught in a junior or a senior high school.

There are a minimum number of relationships between elementary and secondary teachers so that the impact of status leaders would be primarily with their own groups. It is likely that there are some persons who speak for elementary education within a school system but there are few such people whose opinions would carry very much weight with their colleagues at either the junior or senior high school levels. If, for example, a teacher of physical education for boys should publicly give strong support to an innovation, the probability is that such a favorable stance would have little or no impact on those who teach foreign languages or English. There is little articulation among the various subject matter areas and grade levels. Therefore, the problem of promoting changes in a school system is magnified by a lack of the usual social interrelationship found in other institutions.

Institutional Resistance to Change.

A good deal of evidence exists concerning the resistance of institutions to change. As institutions mature they become more and more structured and as a consequence changes are more and more difficult to make. Although the school system does not have as long a history as some other institutions such as the home or the church, our American school system has been in existence in somewhat its present form for over a hundred years. A natural consequence of this history has been the development of certain patterns of organization so that the people within designated roles now resist changing those roles and the functions of the schools.

Not only is a school system a highly institutionalized activity but the staff within it also has resisted research activities and change. In education, suggestions for change whether based upon evidence or not are usually met with such comments as "you just don't understand teaching," or "you just can't take into account all of the variables in education," or "lots of the things which happened to children do not show up until years later." Because of a lack of knowledge in the teaching-learning area, there is no predisposition to changes.

Inbalance Within the System.

There are many references in the literature of innovation, particularly in the writings and research of sociologists which suggest that there must be an inbalance existing within a culture in order for change to occur. The hypothesis is that a culture out of balance moves to restore balance and it is during such a process that change occurs. There is considerable feeling in education, particularly among school administrators, that the best school system is one in which there is a minimum of conflict or controversy. Over and over one gets the feeling that school administrators, boards of education, and others in leadership positions are hopeful that "on one will rock the boat." Therefore, one of the basic ingredients required for a fertile environment for change generally does not exist in education.

Measurement and Evaluation

No Broad Goals.

Within the field of education there are no broad goals as to what the

system should achieve let alone specific and definitive objectives. Ideas as to what the school system should accomplish vary all the way from baby sitting and custodial care to preparing better citizens for a democracy.

No Specific Goals.

The failure to develop purposes applies to both the general outcomes of the school as well as expected outcomes within specific subject matter areas. As attention is being focused on the curriculum across the country and as local schools have assembled their teachers of English or mathematics, it has been disconcerting to discover how little of what is taught at one grade or by one teacher is related to what is taught in another grade or by another teacher even in the same subject matter area. In a meeting of teachers in a department of a recognized school system the teachers were discussing what each was doing from the seventh through the twelfth grades. After considerable discussion during which it was revealed that different teachers were teaching the same content at different grade levels one teacher finally blurted out, "I think it is terribly difficult to deal with objectives in different courses and different grade levels because I don't even know what I'm trying to teach myself."(5) The advent of programmed instruction, teaching via TV, and other similar devices have brought the whole problem of scope and sequence within subject matter areas into bold relief.

Since goals and objectives are not closely specified within subject matter areas or grades, it should be obvious that appropriate interrelationships among subject matter areas are likewise not specified or made

explicit. In a recent article in Saturday Review entitled, "Reform Movement or Panacea?"(6) Theodore R. Sizer argues that the next breakthrough in curriculum development must be the interrelating of the various disciplines. Sizer points out, for example, that the physicists who developed the PSSC Physics course have paid little if any attention to the developments in the various new mathematics curricula and vice versa. Each subject matter area has developed on its own without reference to what other parts of the curriculum may need in the way of content from that area.

No Profit Motive.

A final difference in objectives between schools and many other parts of our social and economical system is that schools are so-called non-profit enterprises. In spite of statistics being projected by economists most educators still promote the idea that education is different from any other kind of institution or organization so that its output cannot or should not be measured in economic terms. Thus the profit motive which exists in the private sector of economy and the need to produce a return on the investment is currently not a force which motivates changes in the field of education.

No R & D Investment.

Innovations generally have required substantial amounts of money for research, development and demonstration activities. The R & D investments by agricultural industries and pharmaceutical firms have been huge. In contrast, education has operated on what Jim Finn has called "the peon approach." Education has never had sufficient financial resources to much

more than maintain a minimal program. Even more serious, however, is the fact that there has been practically no investment in educational research. In recent testimony given before a Congressional Committee in regard to the Elementary and Secondary Education Act, Commissioner Keppel reported that only two-fifths of 1 per cent of the total expenditure for education has been devoted to research.(7)

Further, there has been no so-called "risk" money flowing into the field of education. The innovations which have taken place have come primarily from the manufacturers and suppliers of school equipment and materials. Although these manufacturers frequently have promoted new product development, on other occasions they have also resisted changes because of the increased investment which would be necessary in the development of such new products. For example, if a company has a fairly successful series of texts in a certain subject matter area, it is not likely that the same company will seek new approaches which will diminish the return on their original investment and require greater support of sales and promotional efforts on their part. There has not been a close relationship between the commercial interests and the field of education in terms of either product design or tryout. Because no outside funds have been available for research and development and because developments are expensive and not actively promoted by commercial interests, new educational developments have been retarded.

No Economic Advantage.

A major incentive in the business field for the adoption of any new

hardware or process is the payoff in terms of lower unit costs and thereby greater profits. Because educational institutions have not necessarily been concerned with monetary returns on their operations, there have been no clearly demonstrable monetary returns as a result of innovations. In fact the more likely pattern has been to add the costs of innovations on top of current costs without making any substantial efforts to readjust or redistribute workloads or activities. The result of many innovations has been increased expenditures with no lessening of the per unit cost.

No Personal Advantage.

A final problem relating to the financial aspects of education is that most salary schedules do not differentiate among teachers of varying degrees of effectiveness. Both of the major organizations representing teachers, the AFT and the NEA, have promoted the idea of equal pay for equal preparation and experience. Since there is resistance to merit pay, there is little incentive for superior performance. Present salary schedules enable the very least effective teacher to receive exactly the same salary as the very most effective teacher given equivalent education and experience. The theory of our economic system is that the most efficient should receive the largest monetary reward and so innovations are eagerly sought after and attempted. Such an incentive does not operate in educational institutions.

No Clear Performance Standards

Since objectives and purposes of education are not clear, it is obvious that appropriate evaluations are also difficult to determine. We do have tests available for pupil performance but there has been great resistance

on the part of educators to accept the results as representing any kind of quality measure. Outside of the Regents' tests in the State of New York, no other state has developed a systematic testing program to measure the educational output. There is, in fact, great fear on the part of many teachers and administrators to the use of achievement tests for the determination of quality education. The argument is that tests do not recognize all of the factors which need to be considered and further that such tests would eventually determine the structure of the curriculum. Therefore, pupil assessment through tests as a measure of productivity of either students, faculty, or the school system has been resisted.

In addition to the lack of clear performance standards for the pupils, there are no clear performance standards for the teaching staff. Although attempts have been made over a period of years to develop various ways of determining teaching effectiveness, there is no general acceptance of any one set of criteria. The difficulty of developing standards of teaching effectiveness has become apparent when one examines studies of individuals such as Fattu in which it is suggested that teaching effectiveness is more related to individual school and community factors than to prior preparation. The work of Ryans has centered on certain characteristics of the teacher along with effective teaching procedures and techniques quite apart from the school setting. The most recent work edited by Gage includes chapters by various authors among whom there generally are no great areas of agreement.

Even if one assumes that the evaluation of the teaching act can be done apart from the classroom setting, it is difficult to secure agreement

as to what represents a good teaching model. Some models focus on the learner, others on the interactions within the classroom and still others on the communication of the content. Ordinarily, for changes to be made, there must be some clear models to follow and ways of judging when the performance of those within the system are effective.

No Clear Product Assessment

A third problem in evaluation pertains to the lack of objective standards for product or process effectiveness. Although there is a strong impression on the part of many people that the appropriate addition of newer media, for example, improve the learning situation the research results are not always so encouraging. The finding of "no significant difference," has appeared so frequently in all kinds of educational research that there is justification for some of the skepticism which exists toward media and other innovations.

Although considerable progress has been made in research design in the field of education along with the development of better evaluation instruments, there is still a question as to whether we are yet in a position to measure some of the changes which may be occurring but which cannot be identified. We have not been able, therefore, to provide evidence enabling the unbiased observer to make decisions as to the inclusion or rejection of certain innovations.

Conclusion

The purpose of this paper as indicated in the introduction has been to analyze what is know about innovation from a variety of other disciplines

and to interprete these factors and elements in terms of education. Each of the major sub-topics which has been developed has its foundation in some other discipline, field, or area of research. This paper then has identified some factors and has attempted to discuss the various dimensions of these factors as they might apply to education. Although there are a number of obstacles which make innovation in education more complicated than in a number of other fields, the writer hopes that the failure to have a validated system will be considered a challenge to be met rather than a reason for doing nothing.

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